APPENDIX A
Claims 1-93

WHAT IS CLAIMED IS:

1. A method of injury assessment in an individual comprising the steps of:

a. determining a pattern of expression exhibited by blood cells obtained from the individual and

b. comparing the pattern of expression exhibited by the obtained blood cells to an injury database to assess the injury.

2. A method according to claim 1, wherein the injury is a result of a cause selected from the group comprising cell death, cell dysfunction, genetic abnormalities, or combinations thereof.

3. A method according to claim 1, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

4. A method according to claim 1, wherein the injury database comprises genomic injury databases, proteomic injury databases, or combinations thereof.

5. A method according to claim 1, wherein the blood cells are obtained from a peripheral blood sample or an organ.

6. A method according to claim 1, wherein the step of determining a pattern of expression exhibited by the obtained blood cells comprises capturing a pattern of expression from the obtained blood cells and defining the pattern of expression.

7. A method according to claim 6, wherein capturing a pattern of expression comprises:

i. isolating RNA or protein from the obtained blood cells,

ii. preparing a probe using the isolated RNA or protein,

iii. applying the probe to a microarray, DNA, RNA, or protein; and

iv. measuring the level of the RNA, protein, or combinations thereof.

8. A method according to claim 6, wherein defining the pattern of expression comprises using an expression method.

9. A method according to claim 6, wherein the step of determining a pattern of expression further comprises ranking the molecules of the captured pattern of expression.

10. A method according to claim 7, wherein the step of preparing a probe using the RNA comprises preparing cDNA or cRNA and labeling the cDNA or cRNA.

11. A method according to claim 9, wherein the expression method comprises statistical analysis, class prediction, clustering, computer programs, or combinations thereof.

12. A method according to claim 3, wherein the genes or proteins in the pattern of gene expression or protein expression comprise intermediate metabolism, immune-related molecules, cytokines, chemokines, immediate early genes, structural genes, neurotransmitters, receptors, signaling molecules, oncogenes, proto-oncogenes, heat shock genes, stress genes, transporters, trophic factors, growth factors, cell cycle genes, lipid metabolism, arachidonic acid metabolism, free radicals, free radical scavengers, metal binding, transporting genes or combinations thereof.

13. A method according to claim 12, wherein the genes in the pattern of gene expression comprise acidosis-induced genes, hypoxia-induced genes, glucose-induced genes, ischemia-induced genes, genes as recited in Table 1, or combinations thereof.

14. A method according to claim 13, wherein the glucose-induced genes comprise glucose regulated proteins, glycosylated proteins, glycolytic enzymes, genes as recited in Table 3, or combinations thereof.

15. A method according to claim 13, wherein the hypoxia-induced genes comprise heat shock proteins, genes for nitric oxide synthases, genes for matrix metalloproteins, anti-apoptotic genes, pro-apoptotic genes, genes for cyclooxygenases, genes for growth factors, genes for hypoxia-induced factors, genes involved in the synthesis of cytokines, chemokines, adhesion molecules, or combinations thereof.

16. A method according to claim 13, wherein the acidosis-induced genes comprise of the genes recited in Table 2, the genes recited in Table 3, or combinations thereof.

17. A method according to claim 13, wherein the ischemia-induced genes comprise the genes recited in Table 3 or combinations thereof.

18. A method according to claim 14, wherein the glycolytic enzymes comprise aldolase-A, lactate dehydrogenase-A, phosphofructokinase-L, pyruvate kinase-M, hypoxia-inducible factor, or combinations thereof.

19. A method according to claim 12, wherein the heat shock proteins comprise ubiqutin, HSP10, HSP27, HSP25, HSP32, HSP47, HSP60, HSC70, HSP70, HSP90, HSP100/105, or combinations thereof.

20. A method according to claim 1, wherein the injury database comprises organ specific injury database, disease specific injury database, or combinations thereof.

21. A method according to claim 20, wherein the organ specific injury database includes brain injury database, spinal cord injury database, blood injury

database, muscle injury database, nerve injury database, lung injury database, liver injury database, heart injury database, kidney injury database, genitalia injury database, eye injury database, ear injury database, nose injury database, teeth injury database, bone injury database, white blood cell injury database, endocrine gland injury database, gastrointestinal injury database, blood vessel injury database, or combinations thereof.

22. A method according to claim 20, wherein the disease specific injury database comprises global ischemic injury database, focal ischemic profile, status epilepticus injury database, hypoxia injury database, hypoglycemia injury database, cerebral hemorrhage injury database, hemorrhage injury database for one or more organs, diabetes complications injury database, psychosis injury database, psychiatric disease injury database, bipolar injury database, schizophrenia injury database, headache injury database, acute migraine headache injury database, endocrine disease injury database, uremia injury database, injury database for ammonemia with hepatic failure, toxin overdose injury database, drug overdose injury database, Alzheimer's disease injury database, Parkinson's disease injury database, Tourettes disease injury database, muscle disease injury database, proliferative disease injury database, neurofibromatosis injury database, nerve disease injury database, other dementing illness injury database, inflammatory diseases injury database, autoimmune diseases injury database, infectious diseases injury database, demyelinating diseases injury database, trauma injury database, tumors injury database, cancer injury database, degenerative and metabolic diseases including Alzheimer's injury database, genetic or familial diseases injury database, or combinations thereof.

23. A method according to claim 1, wherein the injury assessment comprises movement disorder injury assessment.

24. A method according to claim 1, wherein the injury assessment comprises genetic disorder injury assessment using a single blood sample.

25. A method according to claim 1, wherein the injury assessment comprises psychosis injury assessment.

26. A method according to claim 1, wherein the injury assessment comprises headache injury assessment.

27. A method according to claim 1, wherein the injury assessment comprises organ injury assessment.

28. A method according to claim 1, wherein the injury assessment comprises brain injury assessment.

29. A method according to claim 1, wherein the injury assessment comprises stroke injury assessment.

30. A method according to claim 1, wherein the injury assessment comprises seizure injury assessment.

31. A method according to claim 1, wherein the injury assessment comprises hypoglycemia injury assessment.

32. A method according to claim 1, wherein the injury assessment comprises hypoxia injury assessment.

33. A method according to claim 1, wherein the injury assessment comprises diabetes assessment.

34. A method according to claim 1, wherein the injury assessment comprises infectious disease assessment.

35. A method according to claim 1, wherein the injury assessment comprises immune mediated disease assessment.

36. A method according to claim 1, wherein the injury assessment comprises efficacy or toxicity assessment, or a combination thereof.

37. A method according to claim 1, wherein the injury assessment comprises proliferative disease assessment.

38. A method of stroke injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess stroke injury.

39. A method according to claim 38, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

40. A method according to claim 38, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

41. A method according to claim 38, wherein the stroke injury comprises ischemic, hemorrhagic stroke, or combinations thereof.

42. A method according to claim 39, wherein the genes in the pattern of gene expression comprise hypoxia-induced genes, glucose-induced genes, or combinations thereof.

43. A method of hypoxia injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess hypoxia injury.

44. A method according to claim 43, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

45. A method according to claim 43, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

46. A method according to claim 44, wherein the genes in the pattern of gene expression comprise glucose-induced genes, hypoxia-induced genes, acidosis-induced genes, ischemia-induced genes, or combinations thereof.

47. A method of hypoglycemia injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess hypoglycemia injury.

48. A method according to claim 47, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

49. A method according to claim 47, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

50. A method according to claim 48, wherein the genes in the pattern of gene expression comprise glucose-induced genes.

51. A method of seizure injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess seizure injury.

52. A method according to claim 51, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

53. A method according to claim 51, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

54. A method according to claim 51, wherein the seizure injury comprises status epilepticus, single tonic-clonic seizure, syncope, pseudo-seizure, or combinations thereof.

55. A method according to claim 52, wherein the genes in the pattern of gene expression comprise histamine H2-receptor, c-jun leucine zipper interactive protein, Glut3, the vesicular monoamine transporter, TNF intracellular domain interacting protein, vascular tyrosine phosphatase, or combinations thereof.

56. A method of movement disorder injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess movement disorder injury.

57. A method according to claim 56, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

58. A method according to claim 56, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

59. A method according to claim 56, wherein the movement disorder injury comprises Parkinson's, Huntington's disease, Tourettes, Sydenhams Chorea, Diffuse Lewy Body Disease, Corticobasal ganglionic disease, or combinations thereof.

60. A method according to claim 59, wherein the movement disorder injury is Parkinson's disease.

61. A method according to claim 59, wherein the movement disorder injury is Tourettes.

62. A method according to claim 60, wherein the genes in the pattern of gene expression comprise SEQ ID NO:1, SEQ ID NO:2, or combinations thereof.

63. A method of diabetes injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess diabetes injury.

64. A method according to claim 63, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

65. A method according to claim 63, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

66. A method of infectious disease assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess infectious disease.

67. A method according to claim 66, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

68. A method according to claim 66, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

69. A method according to claim 66, wherein the infectious disease comprises tuberculosis, viral, prion or combinations thereof.

70. A method of immune mediated disease assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess immune mediated disease.

71. A method according to claim 70, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

72. A method according to claim 70, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

73. A method according to claim 70, wherein the immune mediated disease comprises Graves, Rheumatoid arthritis, Thyroiditis/hypothyroidism, Vitiligo, IDDM, Multiple sclerosis, Primary glomerulonephritis, Systemic lupus erythematosus, Sjogren's, asthma, transplant rejection or combinations thereof.

74. A method of efficacy or toxicity assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess efficacy or toxicity.

75. A method according to claim 74, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

76. A method according to claim 74, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

77. A method of psychosis assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess the psychosis.

78. A method according to claim 77, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

79. A method according to claim 77, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

80. A method according to claim 77, wherein the psychosis is schizophrenia.

81. A method according to claim 77, wherein the psychosis is bipolar.

82. A method of headache assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess headache injury.

83. A method according to claim 82, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

84. A method according to claim 82, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

85. A method according to claim 82, wherein the headache is an acute migraine headache.

86. A method of genetic disorder injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess genetic disorder injury.

87. A method according to claim 86, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

88. A method according to claim 86, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

89. A method according to claim 86, wherein the genetic disorder injury is neurofibromatosis.

90. A method of proliferative disease injury assessment in an individual comprising the steps of:

a. obtaining a peripheral blood sample from the individual,

b. capturing a pattern of expression,

c. defining the pattern of expression, and

d. comparing the pattern of expression to an injury database to assess proliferative disease injury.

91. A method according to claim 90, wherein the pattern of expression comprises patterns of gene expression, protein expression, or combinations thereof.

92. A method according to claim 90, wherein the injury database comprises genomic injury database, proteomic injury database, or combinations thereof.

93. A method according to claim 90, wherein the proliferative disease injury is neurofibromatosis.